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ABSTRACT

In order to identify and document the pervasive trends in the field of educational technology, an elaborate content review of the professional literature was performed. Literature examined included journals, conference proceedings, ERIC Resources in Education (RIE) documents, annuals and yearbooks, and dissertations. The trends that were identified include: (1) the design, development and evaluation of instructional materials and procedures are a primary concern among practitioners of educational technology; (2) professional education for teachers in the use of educational technology principles and practices is seen as a basic need for present and future professional service; (3) distance education is becoming a significant delivery system; (4) the computer is the dominant medium in the field, and telecommunications and video follow close behind; (5) the role of the educational technologist is unclear and varies from location to location; (6) case studies serve as models to follow in the implementation of educational technology applications; (7) the field of educational technology is concerned about its status as a profession; and (8) educational technology principles, products, and practices are just beginning to be integrated into courses and curricula. (10 references) (GL)

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TRENDS IN EDUCATIONAL TECHNOLOGY: 1989

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by

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TRENDS IN EDUCATIONAL TECHNOLOGY: 1989

This digest is based on *Trends and Issues in Educational Technology 1988*, by Donald P. Ely.

In order to identify and document the pervasive trends in the field of educational technology, an elaborate content review of the professional literature was performed. Literature examined included journals, conference proceedings, ERIC RIE documents, annuals and yearbooks, and dissertations. The purpose of this digest is to highlight the significant trends observed in this content review process.

Design, development, and evaluation of instructional materials and procedures is a primary concern among practitioners in the field of educational technology.

A large portion of the educational technology literature is about the design, development, and evaluation of instructional materials. *Issues* in design include the application of cognitive psychology, such as in helping learners to conceptualize unfamiliar content; semiotics and the effects of message configuration characteristics, such as text design, text density, visual design, and use of symbol systems; and the effects of media use on motivation, including learner interest, achievement, and attitude development. *Development* includes such activities as needs assessment, course development, and product development. Finally, *evaluation* is concerned with measures and procedures for determining program effectiveness. Related to this is a call for better procedures for evaluating computer-assisted instruction software and software evaluation databases that are accessible to individuals.

Professional education for teachers in the use of educational technology principles and practices is seen as a basic need for present and future professional service.

Literature in this area is directed both at professional specialists within the field of educational technology and at individuals who teach. Currently, the emphasis appears to be on the teacher/instructor. The basic question is, "What competencies do teachers/instructors need to use technology effectively with their learners?" The assumption is that all classroom presenters should be using media and technology but are not, or that they are using it in less than optimal ways. Much of the literature discusses the use of computers and microcomputers by classroom teachers, and it emphasizes the need for teacher training in the area of *information technology* rather than educational technology or library instruction. This subtle difference is indicative of the gradual blending of educational media and technology with library and information science in the elementary and secondary schools.

Distance education is becoming a significant instructional delivery system that uses technological means to reach its goals.

Interest in distance education is stimulated in part by concerns over equity of access in the face of shortages of

qualified elementary and secondary school teachers. Distance learning protocols have developed in direct response to real teaching/learning problems. Distance education offers practicable solutions to shortages of resources and teaching personnel. To prepare material for delivery requires a systematic approach to instructional design and a concern for the individual student rather than for group teaching. Much of the literature about distance education refers to the use of various telecommunications systems to provide optimum participation by the learners (National Governors' Association, 1988).

The computer is the dominant medium in the field of educational technology.

Statistics show tremendous growth in school use of computers in recent years (Quality Education Data, 1988). It is no longer just the computer-established secondary schools that lead the field; now more than half of U.S. elementary schools have enough computers to provide at least one for every two classrooms. Elementary schools use their micros primarily to supplement lessons with basic skills exercises and opportunities for drill and practice. In secondary schools, the micros are used primarily for teaching formal computer literacy (Talmis, 1988). Teachers express interest in having publishers develop software that teaches problem-solving skills and higher order thinking skills. While the literature reflects the growing enthusiasm for school computer use, it also shows continuing criticism of software quality.

After computers, telecommunications and video are emerging as major media delivery systems.

The apparent preoccupation of educators with computers often overshadows the increasing interest in telecommunications and video. While schools continue to use the traditional audiovisual equipment such as films, filmstrips, slides, audiotape recordings, and overhead transparencies in a more-or-less routine fashion, new development seems to be with video in the classroom for large group instruction, and telecommunications for individuals and small groups within the school and in distance education programs. The Quality Education Data study (1988) notes that over 90% of the schools in the U.S. are using videocassette recorders, while in 1983 only 30% of the schools used VCRs.

The role of the educational technologist is unclear and varies from location to location.

There are very few professionals who actually hold the title of "educational technologist." They are usually represented by such titles as: media specialist, media coordinator, or library media specialist; sometimes they are the director, supervisor, or coordinator of educational media, instruc-

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tional media, or communications. Newer and more specific titles are emerging, including microcomputer coordinator, instructional computer teacher, or specialist in educational computing. Although it is now likely that most large schools and school districts have one or more persons who are responsible for the administrative, logistic, and instructional aspects of instructional media (or, in some cases, just computers), these professionals are assuming such roles from a variety of previous positions and with varying types of education and experience. The question that seems to underlie all of the ambiguity is, "What competencies are required of individuals who are designated to be the educational technologists?"

Case studies serve as models to follow in the implementation of educational technology applications.

People who study the adoption of educational innovations know that one of the most powerful factors affecting adoption is evidence that an innovation has worked in a situation similar to the one where it is being considered. Although they do not carry much information in the way of theory, research, or development, case studies serve as "lighthouses" or "pilots" for other institutions or organizations. The value of case studies in the organization and management of educational technology is demonstrated in the Office of Technology Assessment report, *Power On!* (1988). Spread throughout this document are 29 comprehensive case studies of technology use in schools. Such reports as *New York State Teacher Resource Centers and Electronic Networking*, *Writing by Hand/Writing with a Wordprocessor*, and *Software Evaluation in California* help educational practitioners see how others have successfully used technology to solve specific problems of teaching and learning.

The field of educational technology is concerned about its status as a profession.

Much of the journal literature is about educational technology as a profession, discussing such issues as status, ethics, legal aspects, history, and future developments of the field. It is obvious that practitioners of educational technology are concerned about their professional development and identity. They are attempting to understand who they are, what they should be doing, and how others view them. Such concerns are typical among individuals who feel that they are in an emerging profession without the tradition of an established discipline. It is a generally healthy trend which will probably be evident for many years to come.

Educational technology principles, products, and practices are just beginning to be integrated into courses and curricula.

The history of media in education is one of enrichment or enhancement. Not surprisingly, some of the literature examines the ways in which educational technology and media specialists provide support to teachers/instructors to improve their effectiveness. There is, however, increasing

interest in media specialists as curriculum consultants. Komoski (1987) argues that schools must take the initiative

and begin designing curricula that will provide teachers and students with a variety of options and strategies for achieving curriculum goals. To this end, he describes the Integrated Instructional Information Resource, a group of broadly accessible, electronically searchable, and interrelatable databases that are designed to assist educators in developing "opened-out" curricula. *Information Power* (AASL & AECT, 1988) states that the library media specialist must develop a new, multi-faceted role as information specialist, teacher, and instructional consultant, and it offers guidance for assuming these roles.

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